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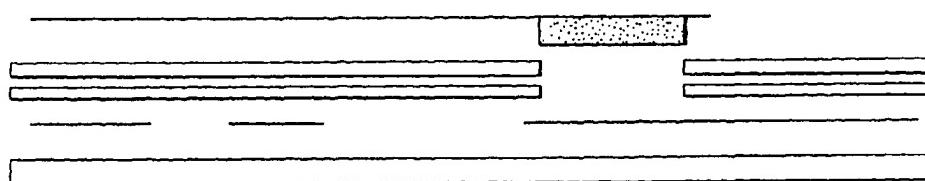
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(54) Title: MEMBRANE SWITCH CIRCUIT LAYOUT AND METHOD FOR MANUFACTURING



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(57) Abstract: A membrane switch circuit layout and method for producing a membrane switch circuit layout are disclosed. The membrane switch circuit layout may have two or more membrane layers. Each membrane has a top surface and a bottom surface. A conductive circuit trace is printed on the top surface of each membrane. The membrane layers are placed in a stack with each top membrane having thru-holes selectively cut there through. Thus, for example, in a layout having two membrane layers, the first membrane is positioned beneath the second membrane and the second membrane has thru-holes cut there through. Conductive ink may be pressed through the thru-holes to provide electrical connection between the circuit traces printed on the membrane layers. An adhesive may be placed between the membrane layers as either adhesive printed on one of the membrane layers or as an additional layer.

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US02/20429

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :H01H 1/10, 13/70; H01L 21/00  
US CL : 200/5; 347/20, 171; 438/21

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 200/5, 330, 512-517; 216/27; 264/497; 347/20, 118, 171, 200, 211; 358/1.1-1.18; 400/124.01, 124.13; 438/21

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
ELECTRONIC DICTIONARY

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EAST

search terms: membrane layer (or film), switch, print head (or printhead)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,046,417/A (MENZE) 04 April 2000, cols. 2-3	1-9,13-21
X	US 5,072,077/A (KLEIN) 10 December 1991, cols. 2-3	4-9,15-21, 25-26
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Y		1-3
X	US 5,438,177/A (FAGAN) 01 August 1995, Abstract and cols 3-4	1-3,12-14,2 3
X	US 5,228,562/A (BURK) 20 July 1993, Fig. 6 and cols. 4-6	10-14, 22-24
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Y		1-3

Further documents are listed in the continuation of Box C.  See patent family annex.

* Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means		
"P" document published prior to the international filing date but later than the priority date claimed		

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